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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09 886,636	06 21 2001	Arihiro Takeda	0941.65640	6148

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EXAMINER

AKKAPEDDI, PRASAD R

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 08 26 2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/886.636

Applicant(s)

TAKEDA ET AL.

Examiner

Prasad R Akkapeddi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement (PTO-144) (Paper No(s) \_\_\_\_)
- 4) ☐ Interview Summary (PTO-413) (Paper No(s) \_\_\_\_)
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

1. Figures 1-8 and 28 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Specification*

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 2,3 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention: The limitation "surrounding area" is not clear and indefinite. The applicant should clarify what surrounding area he is referring to.

### *Claim Rejections - 35 USC § 102*

For the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application

by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1-6, 10-11, 25-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Suzuki et al (Suzuki) (U.S. Patent No. 6,256,082).

As to Claim 1: Suzuki discloses a liquid crystal display device with a pair of substrates (23,33) having electrodes (22,32) facing each other (Fig. 1), and a liquid crystal (11) is sealed between the substrates. Suzuki also discloses an insulating layer that varies electric field orientations in a pixel region when a voltage is applied between the pair of substrates (Fig. 1, broken lines) and (Col. 9, lines 63-67).

As to claim 2: In (Cols 23 and 24, lines 56-60 and 10 respectively), Suzuki discloses the material composition of the insulating layer as Silicon Nitride and the composition of the surrounding layers as Chromium, amorphous silicon and Polyimide. Since these materials are physically different, the dielectric constant of the insulating layer is different from the dielectric constant of the surrounding area.

As to claim 3: Suzuki discloses the insulating layer as being Silicon Nitride (Col 23, line 57), which is an insulator and in Fig.1 discloses that the thickness is different from the surrounding area.

As to claim 4: Suzuki in describing the prior art in Figs. 8a and 8b, discloses that the insulating layers (21,31) on each of the substrates and the staggered nature of the insulating layer.

As to claim 5: Suzuki in (Fig. 1) discloses two vertical alignment layers (21,31) and in (Col 20, lines 2) discloses that the liquid crystal is a nematic liquid crystal with negative dielectric constant.

As to claim 10: In (Col 19, line 52) Suzuki discloses that the second electrode is made of chromium, which is a metal and could be used as a reflective plate.

As to claim 11: Suzuki in (Fig.1) shows the alignment layer (21, 31) as having different thickness from the surrounding films.

As to claims 25 and 26: Suzuki discloses that the insulating layer (26) is provided on electrode (25) and alignment layers (insulating) (21 and 31) provided to both of the electrodes (22 and 32) facing each other.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

*35 USC 103(a)* The differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

a. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koma et al (Koma) (U.S. Patent No. 6,362,864) in view of Suzuki.

Suzuki in disclosing a liquid crystal display with a negative dielectric constant nematic type liquid crystal and vertical alignment layers does not address the issue associated with negative dielectric constant liquid crystal and horizontal alignment layers. However, Koma in disclosing a prior art discloses in (Fig.2) a similar liquid crystal device having two substrates (50,60), two electrodes (51,62) on the substrates, and an insulating layer (52). In (Col 3, lines 15-18) discloses a liquid crystal with positive dielectric constant and horizontal alignment layers. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the liquid crystal having negative dielectric constant and horizontal alignment layers disclosed in the prior art of Koma to the liquid crystal display of Suzuki to reduce the electrostatic breakdown of the TFT, which results in defective display or decline of yield in the production of LCDs. (Col 3, line 43-46).

7. Claims 13-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hisatake et al (Hisatake) (U.S. Patent No. 5,434,690 in view of Suzuki.

a. Although Suzuki disclosed a liquid crystal display device with two substrates having electrodes on each, an insulating layer and the electrode being patterned in a some specific arrangements. Suzuki does not disclose a striped pattern and a zigzag arrangement. Hisatake, on the other hand, discloses a similar liquid crystal device with two substrates (11,12) having electrodes (13,14).

alignment layers (insulating, polyimide films) (15,16), and the electrode structure having striped, zig zag pattern and various other types of arrangements (Figs. 12-31). These are arranged on conductive sections (13a) through non-conductive sections (13b), see Fig. 1A and (Col 15, 27-31). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the striped and zig zag pattern disclosed by Hisatake to the liquid crystal display device disclosed by Suzuki to enhance the viewing angle, transmittance and response speeds.

8. Claims 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo et al (Kondo) (U.S. Patent No. 6,341,004) in view of Suzuki.

Although Suzuki disclosed a liquid crystal display device with two substrates having electrodes on each, an insulating layer and the electrode being patterned in a some specific arrangements, Suzuki does not disclose the specific resistance or the impedance of the insulating layer with respect to the liquid crystal. Kondo, on the other hand, in describing a similar liquid crystal display device, in (Fig. 2b) discloses two substrates (shown in Fig. 1a, item 3), electrodes (2, 10) and an insulating film (13). In (Col 12, lines 8-13) Kondo discloses that there is an increased freedom in the selection of materials for the liquid crystal, the orientation film and the insulator and discloses that the product of the specific resistance and the dielectric constant of the insulating material is larger than that of the liquid crystal material. Since, ~~the product of the specific resistance and the dielectric constant of the insulating material is larger than that of the liquid crystal material.~~ Again, using the design freedom taught by Kondo, an insulating

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material having a higher impedance can also be selected. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the specific materials disclosed by Kondo to the liquid crystal display device disclosed by Suzuki to enhance the viewing angle, transmittance and response speeds.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. (a) Koma et al (Koma) (U.S. Patent No. 6,362,864.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prasad R Akkapeddi whose telephone number is 703-305-4767. The examiner can normally be reached on 7:00AM to 5:30PM M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William L Sikes can be reached on 703-308-4842. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0530.

JRP

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August 7, 2002

*William L Sikes*  
WILLIAM L SIKES  
SUPERVISOR  
AUGUST 7, 2002